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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Christine J. Landry-Coltrain, et al

SMALL POROUS POLYESTER PARTICLES FOR INKJET USE

Serial No. 10/028,130

Filed 20 December 2001

Group Art Unit: 1774

Examiner: Pamela R. Schwartz

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Christine Tolhurst
Christine Tolhurst

February 19, 2004
Date

Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

DECLARATION UNDER RULE 132

1. I, Jeffrey W. Leon, state that I am a resident of Rochester, N.Y., in the county of Monroe and am a citizen of the United States. I obtained a Bachelor of Science degree in Chemistry from State University of New York (SUNY) in Albany, NY in 1989. I was an employee of Schenectady Chemicals in Schenectady, New York in 1989 as a resins chemist. I received a PhD in Chemistry from the Univeristy of Rochester, Rochester, NY in 1994, relating to photodegradation of polyester coatings. I did Postdoctoral work at Cornell University, in Ithaca, New York, from 1994-1996, relating to synthesis of dendrimeric polymers. I have been an employee of Eastman Kodak Company (hereinafter referred to as Kodak) since 1996. I have been assigned to work in research development relating to synthesis of latex polymer particles and beads, thermoreactive polymers, inkjet receiver media, polyester synthesis, and water-borne coatings.

2. I am one of the co-inventors of U.S. Serial No. US 10/028,130.

3. I have read the Office Action issued on November 19, 2003 and am familiar with the references cited therein.

4. It would have been obvious to one of ordinary skill in the art to treat the surface of the medium of the reference in order to obtain a desired level of gloss." In my opinion, it was not obvious to one of ordinary skill in the art to use particles of less than 0.5 to produce a glossy surface. As explained in the following paragraphs 5-7.

5. It is known in the arts of coating and colloid science that smaller particles are more prone to flocculation during drying processes than larger ones. Flocculation results in smaller particles forming larger clusters, which impart larger feature sizes to a coating. This very often results in less gloss.

6. It is known in the arts of coating and colloid science that coatings of smaller particles will build up large capillary stresses, which will result in mudcracking (and thus loss of gloss) of the coatings. Larger particles are less prone to this phenomenon.

7. Smaller particles often necessitate the use of larger amounts of binder in the coating, which will decrease ink absorption speed. It is well known that the increased surface area of smaller particles typically require more binder to cover the surface of the particles.

8. The cited reference Maeda teaches *away* from particles with a size of < 0.5 microns. See paragraph [00061 "The volume-average particle size D of the particles used in the present invention is in the range of 0.5-100 microns, preferably in the range of 1-50 microns, more preferably in the range of 2-25 microns.... If the volume-average particle size is too small, binding of the particles becomes difficult."

9. The calendaring mentioned by the Examiner involves the application of pressure. Porous particles can be crushed during calendaring so this is often not an option. Calendaring requires an extra step, which is not desirable and may not even be feasible in a production process. Calendering teaches nothing about particle size selection, which produces a glossy surface.

10. In paragraph [0006], Maeda states that the polyester resin is "...obtained by condensing a polyhydric acid alcohol component and a polybasic carboxylic acid component, preferably 5 nmole% or greater of an unsaturated polybasic carboxylic acid." In paragraph [0009], Maeda gives preferred amounts of

unsaturated polybasic carboxylic acids in the polyester resin. The percentages of carboxylic acid monomer, which compose the polyester resin, are unrelated to the final acid number and the acid number cannot be calculated from these percentages.

11. When polyester resins are prepared, the carboxylic acid groups of the polybasic carboxylic acid monomers are reacted with alcohols to form esters. The acid number is an indication of the amount of acid units, which are left unreacted (ie. which are not converted to esters). Thus without knowing the extent of conversion of the polymerization reaction, the molecular weight of the polyester resin, and the ratio of acid units to alcohol units during the polymerization reaction, and the extent to which acid units were destroyed or formed during side reactions, it is impossible to calculate the acid number of the polyester resin.

12. Incidentally, if the polyester recipes given in the examples of the present invention were carried out to their theoretical maximum extent of reaction, the acid numbers would be ZERO for each.

13. The Examiner states "...claims 29-31 which relate to particle size distributions. Since applicants indicate that their particles may be a component of a system of particles, it would appear that all of these claim limitations may be met by subdividing the particles disclosed by the prior art reference into ditterent categories, so that a peak in particle size distribution is formed as set forth in claim 29 or 31 in one case, or so that there is a standard deviation of particle sizes as set forth by claim 30 in another. The particles of Maeda cannot simply be divided into different categories, so that a peak in particle size distribution is formed as set forth in claim 29 or 31. Claims 29 and 31 refer to the "mode." A mode is a "hump"in a distribution curve. Mathematically, it is a point in a curve where the first derivative equals zero. A gaussian distribution will have only one mode. A multimodal distribution will have multiple points on the curve where the first derivative equals zero. The modality of a distribution is a critical feature of particles, which can influence many different properties. Maeda makes no mention at all of the modality of his distributions.

14. Claim 30 talks about our distribution as *a whole*. To satisfy the conditions of claim 30, the particles of Maeda would have a coefficient of variation of 0.3 to

3.0, that is, 30-300%, as the standard deviation equals the standard deviation/mean. The coefficient of variation is a measure of the "narrowness" of the distribution. At the end of paragraph [0006], Maeda states "Also, the variation coefficient *(same thing as* CV), a value obtained by dividing the standard deviation by the average value, should be 30% or less *(ie. 0.3)*, preferably 20% or less, more preferably..." Thus Maeda teaches away from the conditions of Claim 30. Maeda says the distribution should be narrow. The present invention says the distribution should not be so narrow.

15. Furthermore, the distribution specified by Meada (having a CV<30%) is a "narrow" distribution. The distribution, which fulfills the conditions of claim 30 (having CV greater than or = 30%), is a "broader" distribution than that of Maeda. Thus it is impossible to "take a cut" of Maeda's distribution (either literally or theoretically) which will satisfy the specifications of Claim 30. In other words, you cannot "subdivide" a narrow peak into a portion which is wider than the parent.

16. I further declare that all statements made herein of my own knowledge are true and that the statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent resulting therefrom.

Date: 2/19/04

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